SolFocus

Toward $1/W

H2Go Innovation Inspired by Nature

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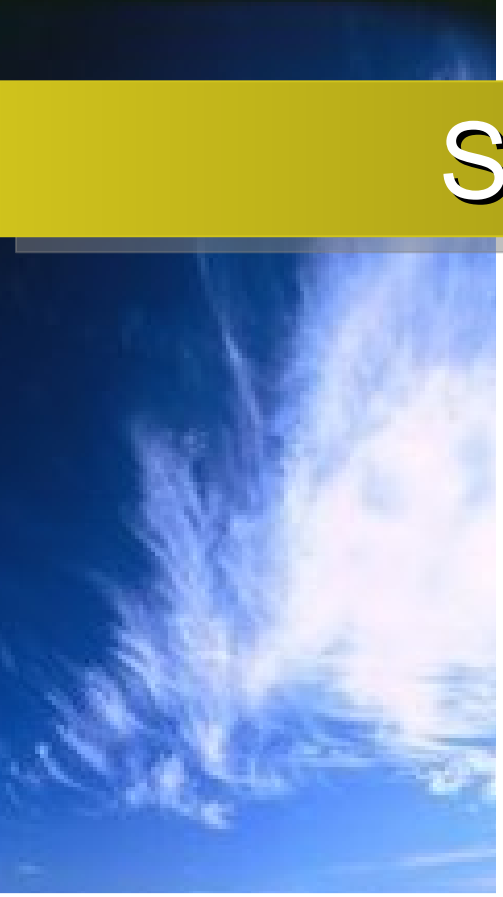
NREL Growth Forum

November 8, 2005

SolFocus

- Mission
  - Deliver reliable solar electricity at wholesale energy prices
- Objective
  - Develop contacts and means toward a well represented $8M – $10M A round

SolFocus Key Factors



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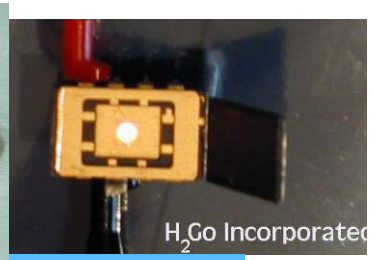
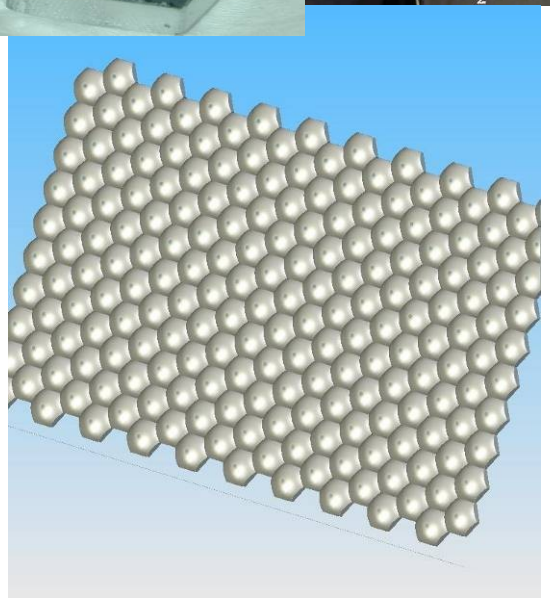
- Cost
  - Target: *installed* COGS $1/Watt
  - Low cost of Ownership
- Emphasis on Reliability
  - 75% power after 20 years
  - Minimal components (KISS)
  - Passive cooling
  - Wind & hail tolerant
- Safety

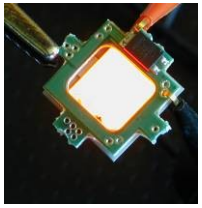
Two Generations

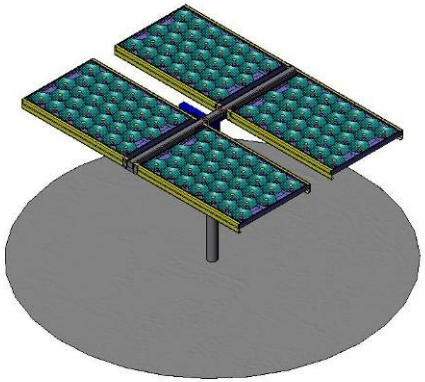
- **Generation 1**

- **Generation 2**









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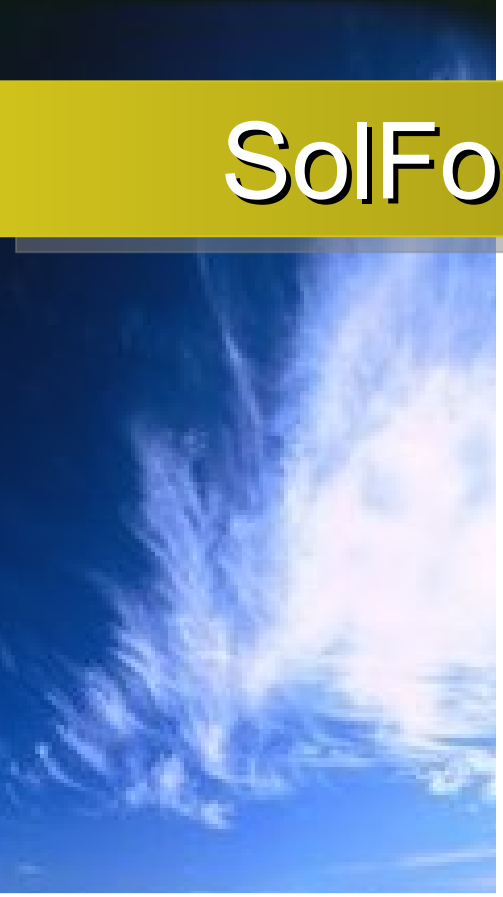
SolFocus Business Approach



- Build & License
  - Develop turn-key systems
  - License/franchise systems
  - License subcomponents
- Field & Rooftop Installations

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Background

- Founded 2004 - Saratoga, CA
- **Sol Focus**
  - Commercialize
  - Exclusive Rights
- Silicon Valley Background
  - Gary D. Conley: Founder, SV ATE Executive, Angel Inv.
  - Steve Horne: SV Engineer, Entrepreneur, Power exp.
  - Rod Boucher: Board member, Calpine, EnergyConnect

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Market: ∞+ 1

- Large Rooftop *Deliver where needed*
  - Acreage on Shopping Malls
  - Miles of R&D tilt-ups in CA
  - Warehouses - Factories & Big Box Stores
- Solar Power Plants
- Green Power purchases up 1,000% *(2.2GW)*
- NOT JUST the Southwest!
  - Boise has the same DNI as San Jose, CA

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Industry Trends

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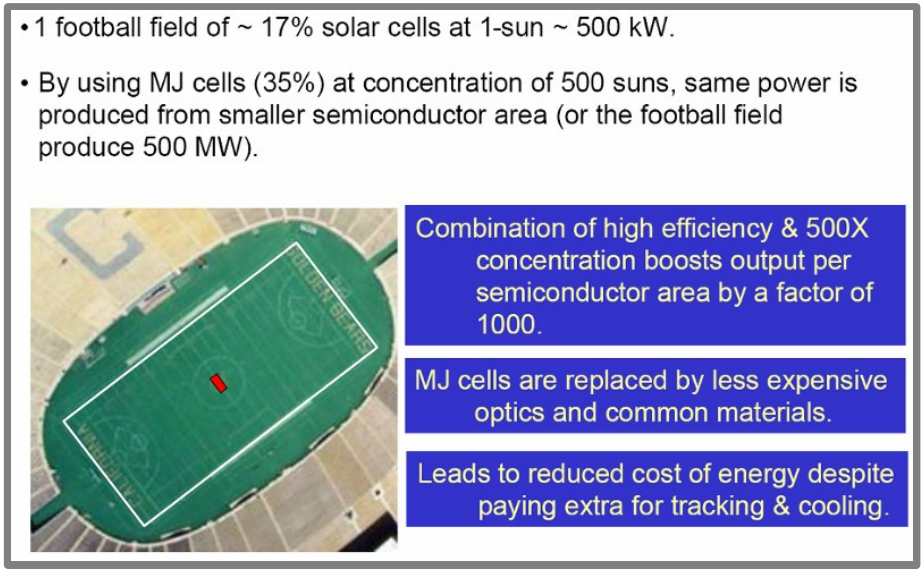
- Silicon Feedstock Shortages
- Peak Power Demand Growth
- Flat PV Using Trackers
- Major Players Investigating CPV
- Variable Energy Rates

Why Concentrate?

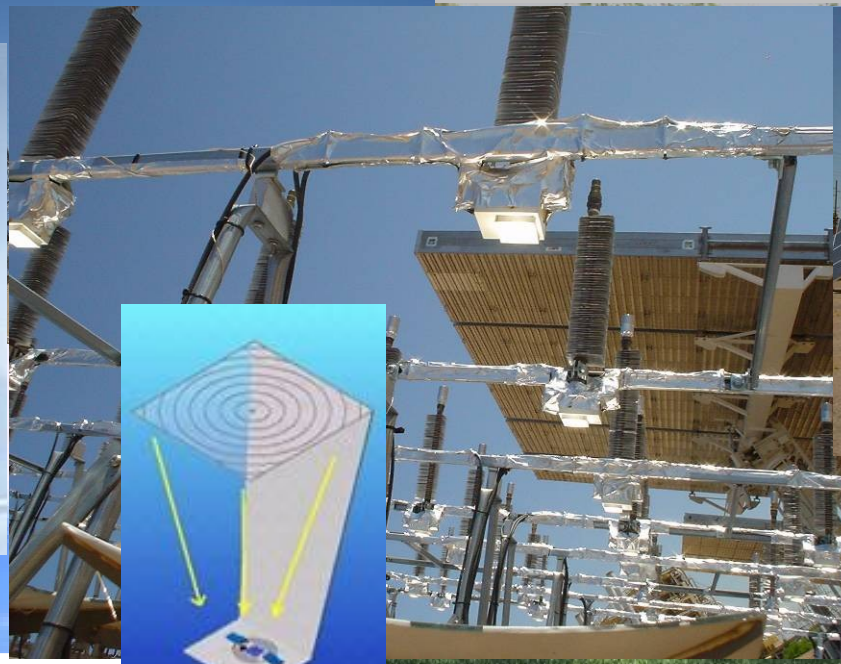
- 1/500 the active material
  - lowest cost + highest efficiency
  - Spectrolab has 200MW/yr capacity



courtesy Spectrolab

- Glass and aluminum are cheap
- NREL says it is time!
  - McConnell, Kurtz, Symko-Davies *re*FOCUS 07/2005

Needed: A Better Approach



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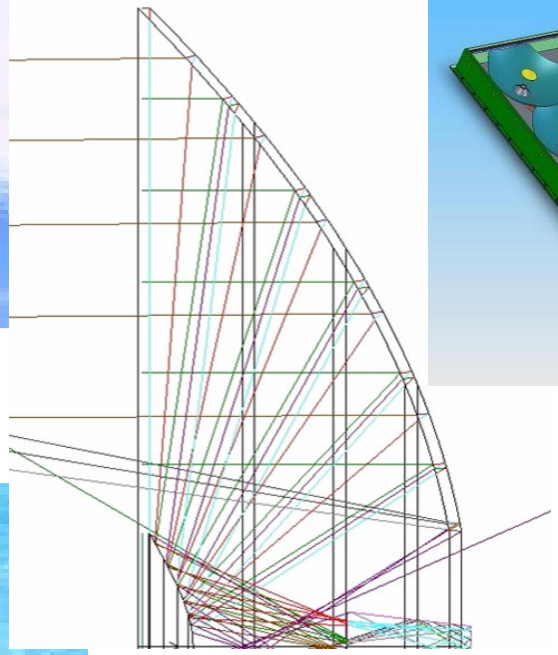
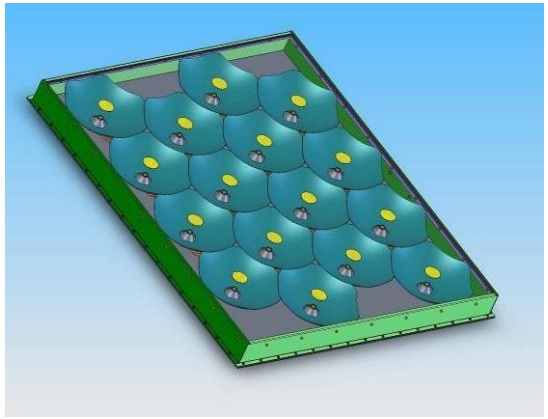
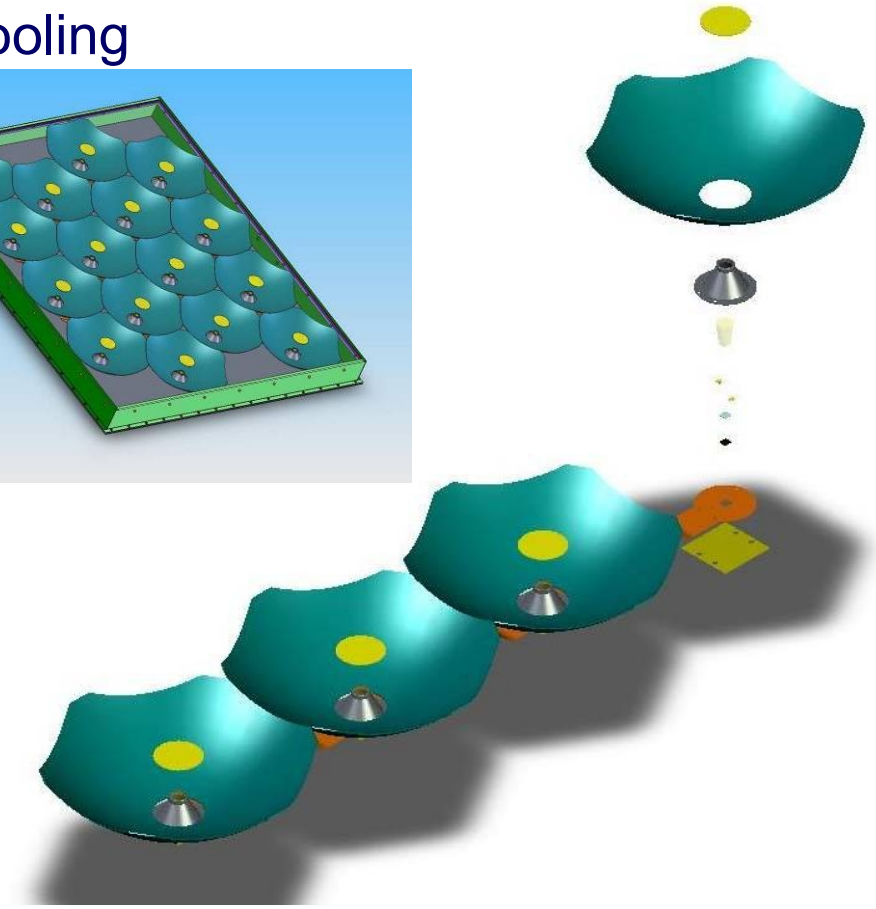
Technology – 1st Generation

- Tailored Imaging Concentrator
  - 500 suns on 1cm2 Spectrolab Cells
  - Passive Cooling







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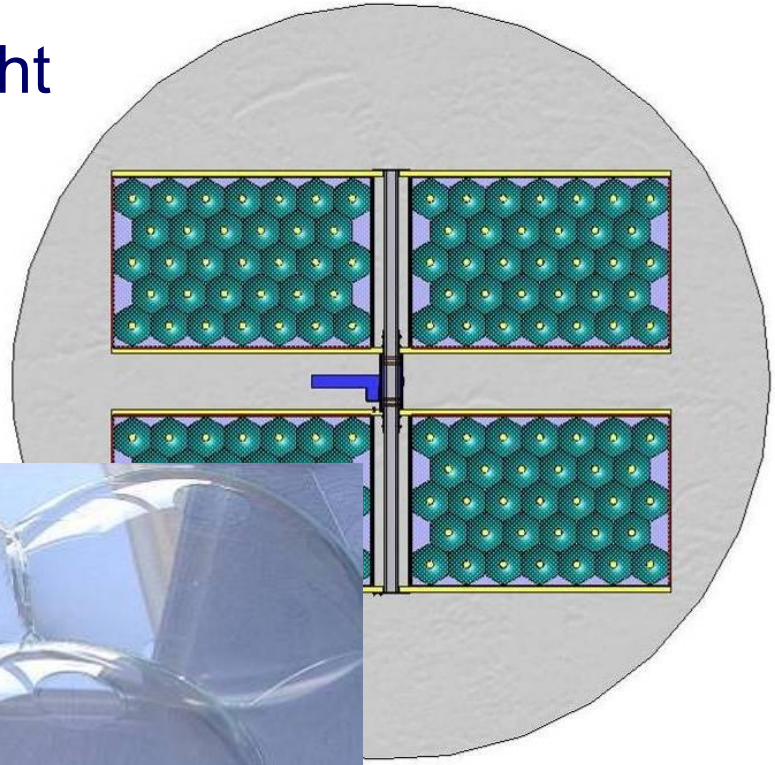
Technology – 1st Generation

- Dual function honeycomb
  - strong but light



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1st Gen Features - Benefits

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Feature	Benefit
TIC Optics	High efficiency, even flux, no chromatic aberration
Spectrolab Cells	Highest efficiency ~40%, backed by Boeing
Coplanar optics	Ease of assembly, alignment, cost
Monocoque design	Strong but light structure, reduced parts and cost
Passive cooling	Minimal components, high reliability, low cost
High acceptance □	Loose tracking requirements
Enclosed system	Reliability, ease of maintenance
No stray energy	Safety
Compact	¼ focal length, at theoretical limit

Glass is cheap, easily formed, everywhere

Technology – 1st Generation

- Discrete Test Units on Sun

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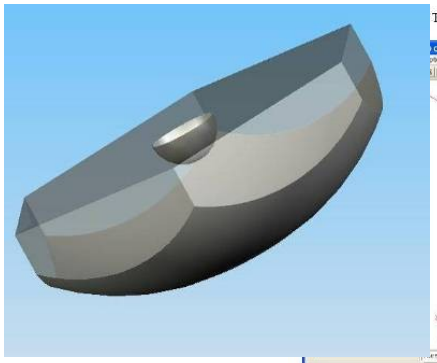
Gen2 Technology

- Solid Concentrator
  - stamped glass – on to rolled process
  - 8mm thickest point, 4mm average
  - 280 x 430mm tiles – 160 elements
  - 30W/tile = **258W/m²**



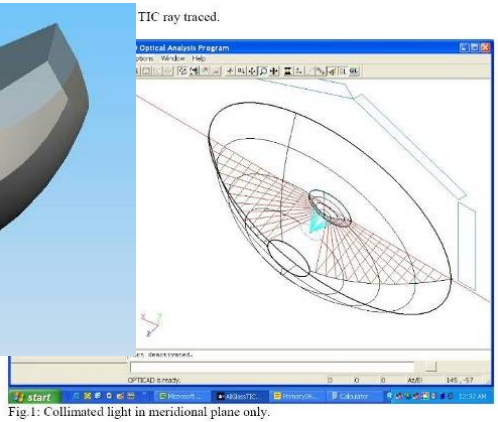
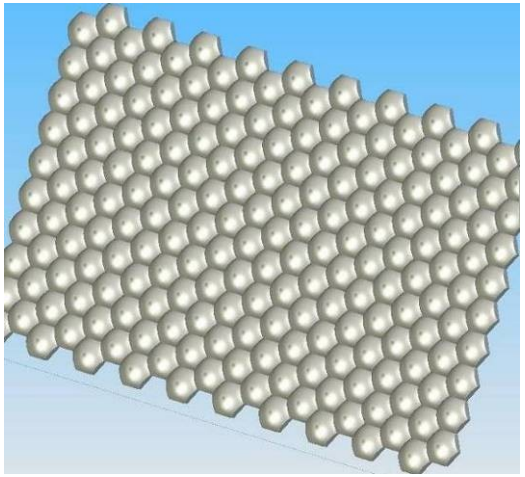
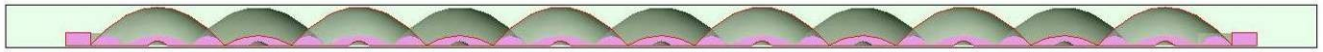
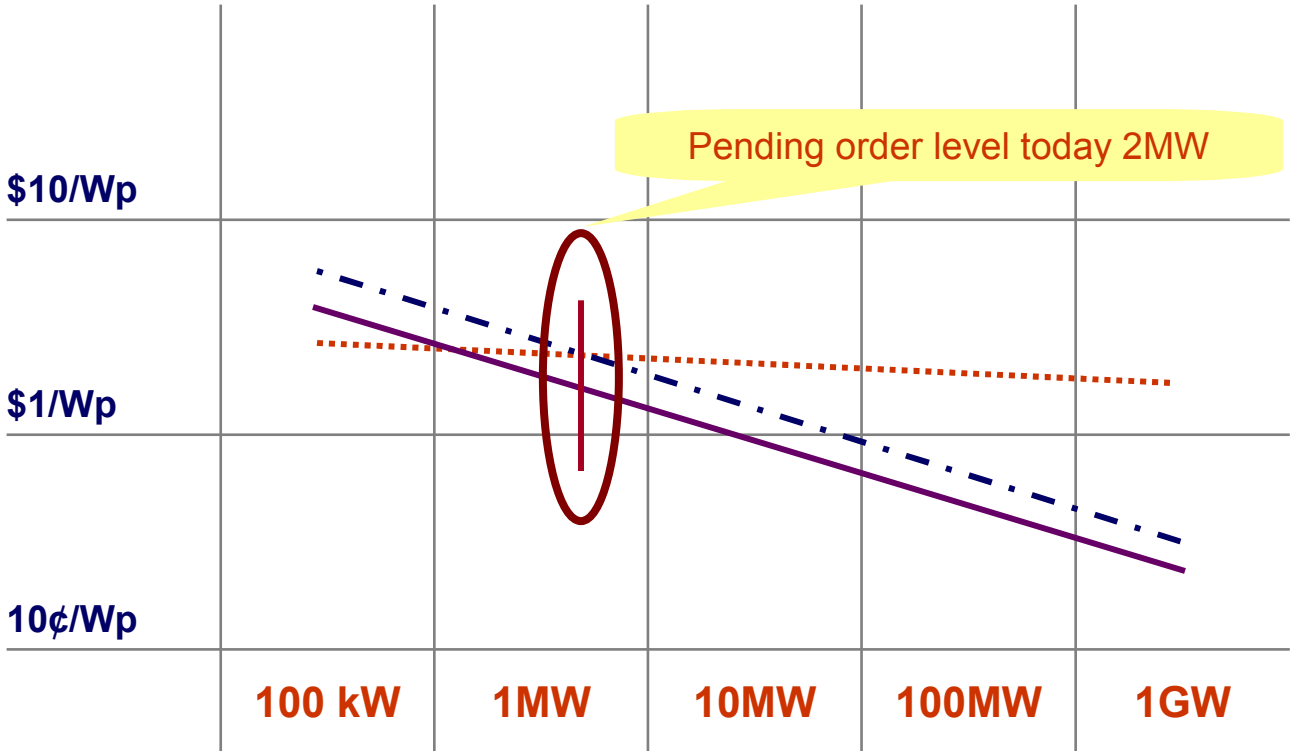


Fig.1: Collimated light in meridional plane only.





COGS – Oranges to Oranges



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Flat Panel PV COGS - $4 dropping to $1.90

SolFocus Gen1 COGS - $8 dropping to **$0.55** @ 1GW

SolFocus Gen2 COGS - $6 dropping to **$0.35** @ 1GW

Finance

- Self-funding
- Grant Applications – UC Merced/PARC/UTC
- Early Adopter Sales @ Cost+ (~ $5/W x 2MW)
- License Fees
- $8M - $10M Round Q1 2006
  - NREL Growth Forum Nov 8, 2005
  - CleanTech Mar 21 – 23 S F

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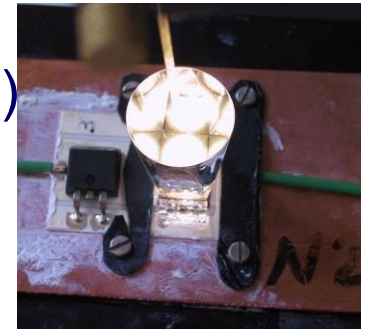
ENERGY INNOVATIONS SECURES $16.5 MILLION IN VENTURE FINANCING LED BY MOHR DAVIDOW VENTURES

PASADENA, CA – June 21, 2005 –Energy Innovations, Inc., currently developing the world's first low-cost rooftop photovoltaic (PV) solar concentrator system, today announced it received $16.5 million in new venture funding. The round was led by MDV-Mohr Davidow Ventures, based in Menlo Park, CA, with additional participation from founding investor, Idealab, based in Pasadena, CA. The new funds will be used to further the company's sales and product development initiatives and for company operations.

Collaboration is Key

- Partnering with UC Merced
  - Grant Matching – Donations – Funded Research
  - Optical Designs – System Test
- Ben Gurion University Israel
  - Cell performance & endurance
  - Optical nano-coatings (A/R, TiO_2)
- Joint Research & Development
  - PARC
  - UTRC (planned)
  - NREL CRADA



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Production Plan

- Industrial Engineering
  - UC Merced Castle AFB facility & PARC
  - Automation, COGS reduction
  - Lifecycle/Reliability
- Vendors & Contractors Key
  - Emphasis on core skills, value added
  - Heavy Reliance on world-class vendors
- License
  - Optics &/or Circuit
  - Key Processes

Use of Proceeds

- Reliability/Certification
- COGS Reduction
- Gen2 Development
- Key Personnel
  - Installation/Support
  - Engineering
  - Business Development
  - Quality – CIP
  - Vendor/Manufacturing Management
  - Distribution Channel Development
- 18 – 24Mos to $30M Revenue & Profitability

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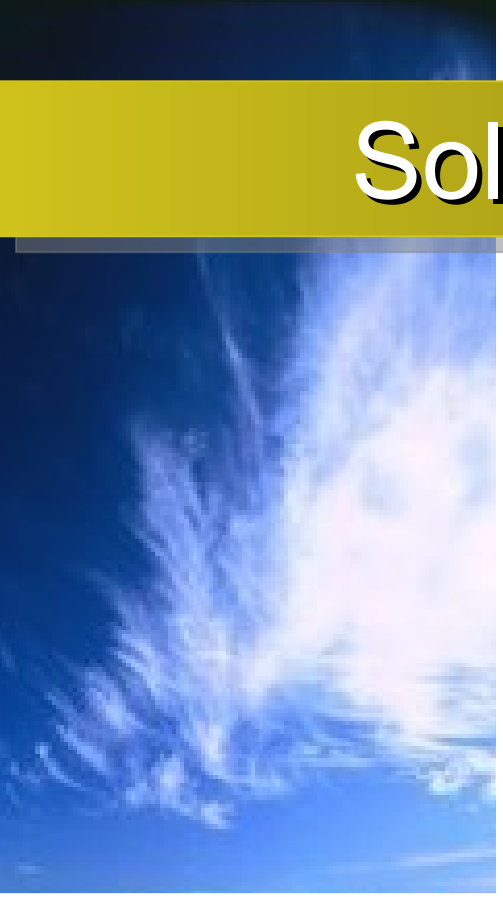
SolFocus Achievements



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- Gen1 discrete units working since May
- Orders pending $10M
  - Shanghai City 250kW demonstrator
  - 2MW early adopters (cost +, 50% down)
- Flex circuit in fab, Guongdong, China
- Gen1 Optics in pilot production
- Gen2 optics nearing completion
- Gen2 cells under test
- All materials in reliability studies
- SolFocus China JV by January – next India

Key IP Locked In

- H_2Go is exercising exclusive rights to UC Solid Concentrator Patent
- PARC license + joint IP Development
- H_2Go patents pending
  - Gen1 design and optics
  - Gen2 design
  - Two more to file
- SolFocus to own all forward IP

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SolFocus In the News

- UC Merced Grand Opening